

SHIAWASSEE

NARRATIVE REPORT

JANUARY - DECEMBER 1965

Shiawassee National Wildlife Refuge

Annual Narrative Report

1965

Personnel

John R. Frye	-	Refuge Manager
Edward W. Anderson	-	Asst. Refuge Manager
S. Sam Poma	-	Refuge Clerk
Louis D. Robinson	-	Heavy Duty Mechanic
James R. Mayle	-	Operator General (Heavy)
Kenneth H. Shelley	-	Operator General (Light)
Amos B. Snider	-	Maintenanceman (Trans. 3/22/65)

Temporary Personnel

James Westenbarger	-	Laborer
James Lambert	-	Laborer
Dennis M. Wint	-	Wildlife Aid

United States Department of the Interior

Fish and Wildlife Service

Bureau of Sport Fisheries and Wildlife
Shiawassee National Wildlife Refuge
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I. GENERAL

A. Weather Conditions.

	<u>Month</u>	<u>Precipitation</u>		<u>Max. Temp.</u>	<u>Min. Temp.</u>
		<u>Normal</u>	<u>Snowfall</u>		
January	2.58	1.11	14.30	58	-11
February	1.65	1.76	13.20	50	-1
March	2.64	1.28	20.70	45	2
April	2.20	3.35	6.60	74	12
May	2.20	3.08	-	88	35
June	1.22	3.89	-	92	42
July	.45	3.56	-	95	42
August	3.52	2.74	-	98	39
September	5.64	2.39	-	89	31
October	.95	3.54	T	83	19
November	2.66	3.93	.80	73	21
December	2.40	1.75	9.80	62	10
Annual Totals	<u>28.11</u>	<u>32.38</u>	<u>65.40</u>	Extremes <u>98</u>	<u>-11</u>

Near normal temperatures and precipitation slightly below normal characterized 1965. Heavy snows were received in January but soon disappeared with a warming period in early February. On February 24 and 25 the winter's worst storm hit this area with ten inches of snow and high winds that resulted in blocked roads and brought all movement to a standstill in the Saginaw Valley. Later snow accumulations in March and early April set up the conditions that resulted in the spring flood in mid-April.

While the annual precipitation was much nearer to normal than during the two previous years, near drought conditions prevailed during June and July. As needed precipitation was wanting during the most of the growing season, farm crops suffered and the valley was included in a farm disaster area late in the summer.

At the end of the year we have experienced very little winter in the area. With the exception of blizzard type conditions with eight inches of snow on Christmas eve and most of Christmas day, there has been little snow received. Temperatures this fall and winter have been much above normal. A new record temperature of 62° was recorded on December 31, and there is only a trace of snow on the ground. Lawn mowing was required into November and grass is still green at the end of the year.

B. Habitat Conditions.

1. Water. Heavy snow accumulations received in January melted quickly following a period of warm temperatures and rain in early February. On February 12, the north dike of Pool 2 was overtopped by the rapidly rising Shiawassee River and a flood threat was eliminated only by a change in the weather that brought sub-freezing temperatures and stopped the general thawing on February 13.

The warning was heeded as additional heavy snow fall was received during late February and March. When the general spring thaw occurred in April we were in trouble. Rising rivers quickly overtopped the north dike of Pool 2 on April 9, followed by a washout in the south dike on the 10th which flooded about 300 acres of private croplands. On April 11, flood waters entered Pool 1b over the south spillway. Extensive damage occurred to the Pool 1 low level dike and the outside dike before levels stabilized with the river on April 13. At that time several sections of the Pool 1 dike were two feet under water. Peak elevation of flood waters was reached on April 14 at 588.60. At this elevation, the situation was critical as there was only about 18 inches freeboard on the Riverside Dike and Pool 1 was lapping at the top of the Center Dike. Levels started falling off on the 15th and flooding of Farm Unit 121, the major cropland area of the refuge, did not occur (see photo section).

As rivers continued to fall off, excess water was drained from Pool 1 through the control structure. During the rest of the year levels were held at or near approved elevations.

Later in the summer, raising and repairs to the north dike of Pool 2 were completed. A pump was installed at the southwest corner and pumping was started on September 3. About 16" of water was pumped into Pool 2 by mid-October to furnish a strategically located marsh area for the fall migrant waterfowl. This water level was maintained until freeze-up in late December.

Continued detergent pollution in the Flint River watershed was still in evidence as banks of suds formed at pump outlets each time pumps were operated. The Michigan Water Resources Commission continued periodic sampling of waters at designated sampling stations. We have yet to receive a report from them on the water analysis.

Water levels in the Great Lakes averaged about one foot higher than in 1964 when they reached record low levels. The forecast for 1966 calls for an additional rise of one foot in Lakes Michigan and Huron.

2. Food and Cover. Food and cover was generally unrestricted during the year. Exceptions occurred during heavy snow accumulations in February and during flood period of April. Spring migrant waterfowl fed almost exclusively on flooded corn that had been left standing over the winter and then chopped down with a rotary mower in February and March. As the marshes opened up, waterfowl began feeding on natural foods. Abundant natural food and cover conditions prevailed in Pool 1 during summer and fall months. As usual, the resident goose flock, with the year's production of goslings, fed primarily on new growth of farm crops in Farm Unit 121 during July and August and moved into the pool as natural foods matured.

An excellent crop of smartweed was produced in Pools 1 and 2, and as water levels were progressively raised in September, heavy utilization by ducks was observed. As the harvest of small grains and corn progressed feeding flights to croplands by ducks and geese increased until most feeding activity was in harvested fields in October and November. Canada geese and Snow and Blue geese completely utilized one field of spring wheat that was left standing and later chopped with the rotary mower to make the seed more readily available. Canada geese, both the resident flock and the migrants, again fed almost exclusively on sugar beets for a time during October. Winter wheat, seeded for goose browse, was also heavily utilized by feeding geese. Duck feeding was confined mainly to barley and corn. During November and December the ducks and geese remaining in the area were feeding exclusively on waste corn left after harvest. Most of the refuge share of the 1965 corn crop was again left standing to provide food for the spring migration of ducks, geese and swans.

II. WILDLIFE

A. Migratory Birds.

Whistling Swans. The first spring migrants were observed on March 13 with the arrival of 9 birds, observed apparently feeding on sugar beet residues in a flooded field. One hundred thirty-two swans observed on March 17 and numbers increased until 600 were present on March 30. The peak population of 2,000 swans was reached on April 20 and the last migrants were observed the first week of May. Major feeding activity of the swans was confined to flooded corn fields in Farm Unit 121 early in the period and non feeding periods were spent in Pool 1 and in the Shiawassee River flats.

Fall migration of swans was observed between October 22 and November 13. Four swans were present in Pool 1b the last week of October, and a major movement of several thousand swans was observed on November 13 when swans were seen and heard all day flying high and fast.

One swan was present on the refuge all summer and is still with us. This may be a cripple, even though it can fly, that was picked up last spring on Saginaw Bay and released into Pool 1.

Geese. The last migrant Canada geese pulled out during the first week of January except 20 birds that remained over the winter. The first 50 spring migrants were observed on March 8 and numbers reached 3,000 by March 15. Peak spring population of 22,300 was reached on April 15 after which the migrants gradually moved out until only the resident nesting flock remained on the area on May 1. Only a few Snow geese and Blue geese were observed using the area during the spring migration.

The first goose nests were located on April 18 just at the time the spring flood occurred. When Pool 1 was flooded and nesting islands were overtopped the entire nesting chronology was disrupted and several nests were flooded out. Re-nesting occurred following the recession of flood waters, but hatching of nests was delayed so that broods were coming off from mid-May until the middle of June with first brood observation on May 17. The initial nesting survey was made on April 26 and 27, with 23 nests found. Later checks gave a total of 28 goose nests in 1965 with production of 115 goslings, as compared to 35 nests and 150 goslings in 1964. During August, 70 of the local goslings were drive trapped and banded with a white plastic leg band with red strip, in addition to the FWS band, to identify them as 1965 goslings. Nesting and production information is included in Section V.

The first influx of fall migrant geese was observed on September 10, increasing the refuge concentration to 2,500. Snow geese were first seen on October 1. The fall peak goose populations was recorded on November 10 with 12,000 Canada geese using the area, along with 200 Blue and Snow geese. Geese started pulling out on November 13 but there were 1,700 Canada geese present on December 14 and with generally mild weather conditions prevailing through late December, there were still 2000 geese present on the area on December 31.

The total goose use days for 1965 was 1,055,110, an increase of 20 % over the 1964 total of 881,604 goose use days. Most of this increase occurred during the fall when the 1965 totals was 608,300, a 39% increase over the 1964 fall total of 437,022 use days. This reflects the new record peak population of 12,000, plus use of the refuge by large numbers of geese through the month of December, much later than in previous years.

Migrant geese utilized chopped spring wheat and barley early in the fall and then moved into sugar beets and winter wheat, but finished on corn.

1965 saw the second year of a three year closure of a large block of lands in this area to goose hunting. A new record fall peak population of Canada geese, 12,000, was recorded. This compares to a peak of 7,500 in 1964 during the first year the area was closed to goose hunting and a peak of 3,500 in 1963 when heavy hunting pressure was received around the perimeter of the refuge.

Ducks. The spring migration was underway on March 9 when first observations of Mallards, Pintails and Ruddy ducks were recorded. Green-winged teal were seen on March 11, Lesser scaup on March 12, Baldpates and Ring-necked ducks on the 13th, Wood ducks on the 15th, and Canvasbacks and Goldeneyes on March 17. All other common species of ducks were present by April 1. The peak spring population, 10,900 was recorded during the third week of April. The main force of the migrants pulled out the first week of May and the refuge summer breeding population had stabilized at about 600 birds by the middle of May.

The first broods were seen in early June and production appeared to be about normal for the area. No brood counts were made, other than random brood observations during the summer.

Duck populations began increasing early in August with an influx of molting birds. Early migrants appeared in late August and numbers had increased to 6,000 ducks by the first of September, and 14,000 by the time the hunting season opened in October. The fall peak of 30,600 was reached during the first week of November, and there were still 5,000 mallards and black ducks present on December 14. At the end of the year an estimated 4,000 mallards and blacks remain on the area.

Duck use days for the year totaled 2,258,412, an decrease of 14% from the 1964 total, 2,630,431. Spring use days were down 67% from 1964, a probable result of flood conditions with a wide dispersion of spring migrants rather than the normal refuge concentrations. Summer and fall use was near normal, with an increase in fall use days of 11% as larger concentrations remained in the area for a longer period.

Major feeding activities of ducks during the summer were on natural foods in the pools. As Pool 2 was flooded in September mallards and blue-winged teal moved in and utilized the abundant and readily available millet and smartweed, as was also observed in Pool 1 as water levels were raised. As the crop harvesting progressed field feeding on barley, wheat and corn picked up. Little utilization of soybeans occurred this year. Feeding flights out to the State Game Area were common until the hunting season opened, when heavy hunting pressure forced the birds back to the refuge. Late in November large flights of mallards were observed daily moving from the refuge into the Big Prairie Farm.

Coots and Gallinules. A single coot was seen on March 30 for the first observation. The peak spring population of 300 coots were recorded on April 30 and numbers had declined to the summer breeding population of 200 on May 9. Broods were observed the first week of June and production appeared to be about normal. A peak fall population of 1,000 was reached on October 24, was noted through November 5, and then rapidly declined until the last coot observed was recorded on December 3.

Common gallinules were first seen on April 19. The summer breeding population appeared to be down slightly, with corresponding drop in production.

Other Water Birds. Spring arrival dates were spread out over an extended period beginning with first observations of Great Blue Herons on March 29 followed by Pied-billed Grebe on April 14 and many of the common species by April 26. All species were present in normal numbers during the year. Two Sandhill cranes were seen in Farm Unit 121 on April 13 and one Common Loon was reported in Pool 1 on July 24. Nesting colonies of Great Blue Herons and Green Herons were again active at the usual locations. Last observations of marsh birds were recorded in late October and early November. One exception was an observation of one Great Blue Heron in Pool 1a on December 18. American egrets were again summer visitors with seven present during August.

Shorebirds, Gulls and Terns. Recorded first spring observation dates are as follows: Herring Gull and Ring-billed Gull, March 15; Killdeer on April 3; and Common Tern and Black Tern on April 27. Various shorebirds were observed between April 3 and April 30. Higher water levels in Pool 1 made unfavorable habitat conditions for shorebirds and numbers using the area were slight. All species had departed by early November except the gulls, several hundred of which remain in the area at the end of the year.

B. Upland Game Birds.

Ring-necked pheasant populations increased slightly during the period. A total of 33 pheasants were observed using a limited area of dense willow and brush adjacent to the riverside dike north of Farm Unit 121 during the early portion of the period. In late summer the concentration of birds was located on the north side of Pool 2. An estimated 100 birds were using the refuge at the end of the period with a sex ratio of 1:1. As in 1964 another sharp decrease occurred in some of the better pheasant habitat located near Saginaw County.

Two ruffed grouse were observed for the first time in several years on the refuge on March 12 near the wooded areas east of Secondary Headquarters.

C. Big Game Animals.

White-tailed deer were commonly observed throughout the year. The estimated population at the end of the period was 300. Hunting during the season removed a total of 150 from the period high of 450 animals. Production was excellent with twins and triplets per doe being a rule of thumb while single fawns were an exception. By the end of the hunting season, the population of deer in the closed area, namely Farm Units 121 and 122, totaled approximately 190.

The reduction in population due to hunting amounted to about 33% of population. It appears that this may reduce the competition with waterfowl for the available food while leaving enough breeding population to produce a huntable surplus for 1966.

D. Fur Animals, Predators, Rodents, and Other Mammals.

A stable to slightly decreasing population of muskrats was observable in 1965. The higher water levels in the rivers may have caused an increased dispersion of the animals and thus make it appear as if a sharp decrease had occurred since 1964. Damage to dikes is at a minimum with good to excellent breakup of dense cattail stands providing a desired edge effect.

Beaver continued on the increase in population as in the past several years. Houses have been built in Pool 1b and the Shiawassee River at its entrance into the refuge in addition to Pool 1a. Beneficial effects of food habits, namely removing undesirable cottonwood trees from pool dikes, has been realized but not without the disadvantage of sometimes blocking vehicle traffic on these dikes by misfelled trees.

Mink and Weasel populations remain low. No observations of either species were made during the year.

Raccoon populations appeared to remain stable during the year. Only three instances of raccoons entering walls in traps and killing birds were recorded during wood duck banding operations.

One observation of an opossum was made in early October on the refuge.

Four active dens of Red fox were noted in Farm Unit 121 and on the Center dike. On March 27, 5 red fox were observed in one corn stubble field apparently hunting mice. They were ignored to some extent by ducks feeding in the same field. Three fox were trapped and destroyed in two days near the "Colorado" duck trap and trapping operations were not hampered.

E. Hawks, Eagles, Owls, and Crows.

Marsh hawks, red-tailed hawks, sparrow hawks, Cooper's hawks and turkey vultures were seen frequently throughout the year. American rough-legged hawks are winter residents. Two Golden eagles were observed on March 12. Two Bald eagles, an adult and immature, were commonly observed in late spring, summer and early fall at edge of woods bordering the south side of Tracts 121 and 122, and Pool 1b. A rare observation of an osprey was made on April 22, and again on October 22.

Great horned owls, short-eared owls, long-eared owls, and screech owls were common.

Crows were common throughout the year. There were no major buildups during the migration periods.

F. Other Birds.

No unusual observations this period.

G. Fish.

Carp were in over-abundance in the pools and ditches during the year. It appeared that carp activity in and around the "Salt Plains" trap and other traps with bait in the water, effectively reduced duck trapping success.

H. Reptiles.

Fox and garter snakes were the most common snakes in the refuge. Several large snapping turtles were removed from the refuge. One snapping turtle was observed attempting to pull a young duck under water in the "Salt Plains" trap. The extent of predation on water-fowl by turtles is unknown.

I. Amphibians.

Bull-frog population was about normal.

J. Disease.

A die-off of waterfowl possibly attributable to botulism was reported in Saginaw Bay located 20 miles downstream from the refuge. No extensive disease outbreaks occurred on the refuge. Three Whistling swans died during the spring migration (See Section V, No. 2).

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development.

1. Dikes and Ditches.

The drainage ditch along the east side of Field 4 of Farm Unit 121a was cleaned to improve tile drainage, and a drop inlet to improve surface drainage was installed at the southeast corner of Farm Unit 122. The spoil from ditch cleanout consisted of topsoil blown into the ditch and was placed on fieldside of ditch bank to be levelled and seeded to grass next spring.

Flood damaged sections of the Pool 1 dike, the low level dike, and Pool 2 dikes were repaired. All fill was hauled in and placed by dump truck due to lack of fill material along the damaged dike sections. The new fill on Pool 1 dikes was levelled and top and slopes seeded to grass. Levelling and seeding of Pool 2 dikes was not completed this year.

2. Roads and Trails.

All roads were graded periodically during the year. Additional gates were constructed and placed at access points. Grass strips approximately 36 feet wide were seeded along interior roads of Farm Unit 121.

3. Fencing and Posting.

The entire refuge boundary posting was checked and reposted as needed prior to the waterfowl hunting season. Prior to the deer hunting season posting of public hunting area was completed, and signs later removed after close of season.

Boundary lines were dozed out and boundary fence constructed along one mile of the west side of the Johnson Tract (#1114).

Five miles of boundary fence along south and east side of refuge were repaired and an additional 1/4 mile constructed.

4. Pool 2 Development.

Dike repairs were completed during the summer. After loss of the winter barley, seeded in fall of 1964, from flooding, the pool bottom was disced lightly and broadcast seeded to a mixture of millet and buckwheat to keep undesirable plants down and to provide supplemental waterfowl food. Nesting islands were repaired and several new ones constructed with the TD-18 dozer, and then seeded to grass.

A Lang pump, powered by the D-4 tractor, was installed at the southwest corner of Pool 2, with water supply from the Misteguay Drain. Pumping was started on September 3 and when pumping was terminated in late October the millet and smartweed was flooded to average depth of about 16 inches.

5. Miscellaneous Jobs.

Regular and routine repairs and maintenance to vehicles, heavy equipment, and buildings.

During refuge beautification week several projects were initiated and completed later in the summer, including shrub plantings at headquarters, lawn renovation at the manager's residence, general clean-up at Secondary headquarters site, clearing and levelling an area for equipment storage yard; installation of new overhead doors on Secondary headquarters work building, and painting of all refuge buildings.

Re-grading of cannon net trapping site in Pool 1b and installation of permanent cannon set-up.

The carpenter shop and cold storage stalls of Headquarters equipment building were wired and overhead lights installed. Furnace installation in Carpenter shop was completed.

Heated work space at Secondary headquarters was enlarged to two stalls and furnace installed to replace space heater.

Made up ten additional nesting tubs from ends of jet engine containers and set out in Pools 1 and 2. Re-set tubs that had been tipped during spring flood.

B. Plantings.

1. Aquatic and Marsh Plants.

No marsh or aquatic plants were planted in 1965. Because of the high water loss of winter barley planted in Pool 2 in 1964, 96 acres of buckwheat-barley mixture was sown. The mixture developed well until reflooding in early September. Both species of food were used extensively by ducks during October and November.

2. Trees and Shrubs.

Ten red leaf barberry (*Berberis canadensis*) and 2 golden privet were planted around the refuge headquarters during the refuge beautification week project in late June.

3. Upland Herbaceous Plants.

About 14 acres of refuge lands on Tracts 121, Pools 1 and 2 dikes and Tract 205 were planted to a brome grass, ryegrass, alta fescue mixture. Fifty square yards of sod was planted adjacent to the refuge residence. The plantings of the grass mixture included erosion control on dike tops, artificial nesting islands, retired cropland and grass strips bordering fields for farm equipment turn around area.

4. Cultivated Crops.

Agricultural crops were planted on 1952 acres of refuge lands. Farming operations began on April 22 and ended approximately December 10. Refuge crops and yield data are summarized in Tables 1 and 2. Seven agricultural crops were produced in 1965 including corn, barley, wheat, oats, white (Navy) beans, and sugar beets. Yields were generally lower than 1964 due to near drought conditions in the first half of the growing season. However, the lower yields were offset slightly by an increase in prices. The average dollars received per acre was \$70.20 as compared to \$91.38 per acre in 1964.

The near drought conditions in late June and July produced poor yields of corn and white beans. These conditions, however, had no adverse effects on barley, wheat and oats.

A total of 25 acres of wheat and 19 acres of barley was left standing in the fields and later chopped down. This was consumed by ducks and geese. Seventy-six acres of refuge share of corn was left standing to provide food to be made available during the spring migration of 1966. Thirty acres of refuge share corn was harvested by cooperators, dried and stored in the refuge granary.

Cover crops planted in 1965 included ryegrass in corn, clover and alfalfa in wheat and barley, and rye-wheat mixture on white bean ground on a total of 767 acres of refuge lands. These practices provided wind erosion control, increased soil fertility and grazing opportunities for migrating Canada geese.

As an experiment suggested by the local Soil Conservation Service 10 acres of sugar beets was broadcast seeded with rye prior to beating beet tops before harvesting. The rye developed well with no additional working of the ground. Soil disturbance and compaction by the harvesting operations and the mulch from the beet tops appeared to provide an excellent seed bed. The practice may be scheduled for more extensive use in future years.

SHIAMASSE REFUGE
REFUGE CROPS - 1955

CROP	ACRES	% OF TOTAL ACRES
Barley	110	5.53
Field corn	473	24.20
Oats	5	0.31
Wheat	70	3.58
Soybeans	213	10.91
Sugar beets	291	14.89
White beans	778	39.81
Mammoth clover	13	0.57
	<hr/>	<hr/>
TOTALS	1954	100.00

SHIAWASSEE REFUGE

CROP YIELDS - 1965

WHITE BEANS

<u>Cooperator</u>	<u>Acres</u>	<u>C.W.T./Acres</u>	<u>\$/C.W.T.</u>	<u>\$/Acre</u>
I. Almy	184	9.35	8.38	78.35
R. Bremer	46	9.38	8.55	80.27
D. Boese	95	9.82	8.02	78.75
M. Boese	208	9.01	8.33	75.04
J. Bruns	22	4.16	4.56	31.60
G. Bremer	46	9.86	8.07	79.54
H. Gosen	26	7.65	7.01	53.63
A. Peaphon	52	8.67	8.74	75.78
A. Schluckebier	38	14.97	8.58	128.44
A. Simko *	40	.57	7.23	6.92
W. Wasmiller	<u>21</u>	<u>12.54</u>	<u>7.82</u>	<u>98.06</u>
Total	778	Average 8.72	8.20	71.49

* Only portion of field harvested

SOYBEANS

<u>Cooperator</u>	<u>Acres</u>	<u>Bushel/Acre</u>	<u>\$/Bushel</u>	<u>\$/Acre</u>
I. Almy	25	25.54	2.26	57.72
R. Bremer	43	21.30	2.26	48.13
D. Boese	51	30.00	2.26	67.80
H. Gosen	24	39.17	2.26	88.52
A. Peaphon	42	37.47	2.26	84.67
W. Wasmiller	24	32.54	2.26	73.54
R. Gempel	<u>4</u>	<u>-</u>	<u>-</u>	<u>-</u>
Total	213	Average 31.00	2.26	70.06

CROP YIELDS - 1965

BARLEY

<u>Cooperator</u>	<u>Acres</u>	<u>Bushel/Acre</u>	<u>\$/Bushel</u>	<u>\$/Acre</u>
R. Bremer	23	88.4	1.10	97.24
M. Boese	29	102.3	1.20	122.76
J. Bruns	6	Stored in refuge granary		
A. Peaphon	<u>52</u>	<u>57.0</u>	<u>1.10</u>	<u>62.70</u>
Total	110	Average 82.6	1.13	94.23

WHEAT

<u>Cooperator</u>	<u>Acres</u>	<u>Bushel/Acre</u>	<u>\$/Bushel</u>	<u>\$/Acre</u>
D. Boese	25	Left standing in field		
M. Boese	25	61.5	1.20	73.80
A. Peaphon	<u>20</u>	<u>50.0</u>	<u>1.33</u>	<u>66.50</u>
Total	70	Average 55.7	1.26	70.18

FIELD CORN

<u>Cooperator</u>	<u>Acres</u>	<u>Bushel/Acre</u>	<u>\$/Bushel</u>	<u>\$/Acre</u>
I. Almy	35	-	-	-
R. Bremer	63	31.6	1.10	34.74
D. Boese	136	61.0	1.10	67.10
M. Boese	95	77.6	1.10	85.36
J. Bruns	22	35.5	1.10	39.05
G. Bremer	13	39.9	1.10	43.89
R. Gempel	2	-	-	-
A. Peaphon	60	57.3	1.10	63.03
A. Schluckebier	30	103.2	1.10	113.52
W. Wasmiller	<u>15</u>	<u>57.6</u>	<u>1.10</u>	<u>63.36</u>
Total	473	Average 57.9	1.10	63.75

CROP YIELDS - 1965

SUGAR BEETS

<u>Cooperator</u>	<u>Acres</u>	<u>Tons/Acre</u>	<u>\$/Ton</u> <u>1st Payment</u>	<u>\$/Acre</u> <u>1st Payment</u>
I. Almy	75	20.9	3.40	71.09
R. Bremer	28	13.5	2.50	33.67
D. Boese	70	17.1	2.25	38.62
H. Gosen	22	15.7	5.27	83.13
A. Peaphon	61	18.3	3.53	64.63
A. Schluckebier	<u>35</u>	<u>25.8</u>	<u>4.57</u>	<u>118.27</u>
Total	291 Average	18.5	3.59	68.23

OATS

J. Bruns 6 acres

MAMMOTH CLOVER

I. Almy 13 acres 23.14 Ton

SHIAWASSEE NATIONAL WILDLIFE REFUGE

1955

CROP PROGRAM SUMMARY

CROP	ACRES	TOTAL YIELDS	YIELD/ACRE	\$/Bu./Ton/CWT	REFUGE RECEIPTS	TOTAL RECEIPTS
Soybeans	110	5,379.18 Bu.	31.00 Bu.	2.25	2,174.44	14,415.95
White beans	778	5,939.70 CWT	8.72 CWT	8.20	11,750.47	28,121.94
Sugar beets	291	5,508.37 Tons	18.50 Tons	3.59	11,351.01	18,884.40
Barley	110	5,417.00 Bu.	82.50 Bu.	1.13	-	7,251.21
Wheat	70	2,511.00 Bu.	55.70 Bu.	1.25	-	3,139.55
Field corn	473	14,355.90 Bu.	57.90 Bu.	1.10	-	15,791.49
TOTALS	1941				25,285.92	87,505.55

APPLIED TO TILING AND TILE

CROP	COOPERATOR	ACRES	RECEIPTS
White beans	A. Peaphon	3.5	\$ 191.23

CROPS LEFT IN FIELD FOR WILDLIFE

CROP	ACRES	VALUE
Field corn	75	\$7,500.00
Wheat	25	\$1,750.00
Barley	19	\$1,900.00

CROPS STORED IN REFUGE GRAINARY

CROP	ACRES	BUSHEL	VALUE
Field corn	30	1351	\$1,497.10
Barley	5	150	\$ 157.50

Possession of lands under the Declaration of Taking filed on November 9, will increase refuge agricultural lands to about 3,200 acres. Final decisions on whether or not this land will be farmed have not been determined.

Land capability plans for the remaining tracts of land are in the process of being drafted by the local Soil Conservation Service office. Three acres of cropland in Farm Unit 186 were tilled at 8 rod intervals in 1965. Total cost removed from refuge share of crops was \$191.23. Twenty-five acres of tiling is planned for 1966.

Two meetings of the refuge staff and all farming cooperators were held in 1965 to discuss farming operations. Many individual contacts with cooperators were made throughout the year.

C. Collections and Receipts.

1. Animal Specimens.

None this period.

2. Refuge Herbarium.

Wildlife Aid Wint collected, pressed and mounted 10 new plant specimens for addition to the refuge herbarium. Some worn specimens were replaced.

D. Control of Vegetation.

Approximately 68 lbs. of 2,4,5-T and 62 lbs. of 2,4-D were sprayed on several areas of the refuge in an attempt to control undesirable brush and weed species. The use of 2,4,5-T was very effective on willow in early June producing a kill of about 85%. The 2,4-D used on Canada thistle, milkweed, mustard, ragweed and other broad-leaved weeds controlled 90% of plants sprayed with very little regrowth. All agricultural vegetation control was completed by the cooperator at their expense.

E. Planned Burning.

None this period.

F. Fires.

Fire hazard conditions on the refuge were relatively low during the year. No fires occurred. The Panama fire pump was repaired and mounted on a trailer for standby use.

IV. RESOURCE MANAGEMENT

A. Grazing.

None this period.

B. Haying.

Thirteen acres of mammoth clover originally seeded as a cover crop in Farm Unit 143 in 1964 was hayed in 1965. This unit produced 23.14 tons based on average weight of baled hay and was sold to the cooperator, I. Almy, at \$6.00 per ton of standing clover. Total receipt to the refuge amounted to \$138.85.

C. Fur Harvest.

The muskrat harvest, which ended January 31, 1965 was accomplished under two permits. The trappers harvested a total of 1,495 muskrats as summarized in the following tables.

Trapper	Unit No.	Trapper Share	Refuge Share	Total
Bongrin & Wyman	3	591	394	985
Bouchey	2 & 3	306	204	510
TOTALS		897	598	1495

No. Harvested Per Months of Trapping

December - 698

January - 797

Sex & Age Ratio of Refuge Share

Adult		Juvenile	
Male	Female	Male	Female
26	32	309	231
58		540	

Ratio - Adult:Immature

1 : 9.3

The refuge share of muskrats were shipped for sale to the Hudson Bay Company Fur Sales, Inc. in New York on February 9 and they were sold on March 11, 1965. The net receipt from the sale totaled \$777.60 or an average net price per pelt of \$1.30 which was a decrease of 34 cents below the 1963-1964 price.

In 1966, refuge share of furs will be sold locally in an attempt to increase receipts while reducing costs of handling.

On December 6, the 1965-1966 muskrat harvest was started under one permit. As of December 31, a total of 205 muskrats have been trapped.

As in 1964-1965 trapping season, the quota limitation system was removed for 1965-1966. The age ratio of the 64-65 harvest indicated an increasing population with a high proportion of immature animals. Due to incomplete house building at the time of fur management recommendations, population estimates were difficult to ascertain. It is believed that the factors of weather, decreasing muskrat populations during trapping and the ability of the trappers will work together to limit the total harvest under the 75 percent recommended maximum removal.

D. Timber Removal.

None this period.

E. Commercial Fishing.

None this period.

V. FIELD INVESTIGATION OR APPLIED RESEARCH

A. Shiawassee Study Project No. 1.

This project, one of two approved wildlife management studies initiated at this station was conducted in the second year of its proposed five year span. Principal objectives of this study include life history, nesting phenology, and success of the refuge goose flock, correlation of population trends with changes in nesting habitat, determination of mortality rates and migration behavior.

Due to the availability of only two years of data composite results are not conclusive. However, a summary of data collected in 1965 and observational generalizations in comparison with data of 1964 will be made.

The original Canada goose flock consisted of approximately 435 semi-domestic birds. These birds were obtained from the Michigan Department of Conservation approximately 100 geese per year, and released at three years of age. An estimated 60 pairs were nesting on the project area in 1962 and 50 pairs in 1963, producing 225 and 175 goslings respectively. The study of the natural development and behavior of this flock may determine a degree of justification of the establishment of flocks of semi-domestic Canada geese in other areas.

1. Methods and Procedures.

Determination of spring arrival dates and general observations of territorial behavior were completed in March and the first three weeks of April, 1965. During the last week of April, a nesting survey was conducted. Data recorded included, number of nests, clutch sizes, relation of nests to vegetational and topographic features, development of nests, and nesting behavior. A re-survey was completed within one week following an observation of the first successfully hatched brood. Data were recorded as to success of hatching and possible mortality factors.

An attempt was made to trap and band goslings to determine future age classes, migration routes, and effects of hunter mortality. All goslings trapped by the use of small drive traps were sexed and banded with a standard Fish and Wildlife Service band. In addition, a white base vinyl plastic leg band with a red strip designating a 1965 raised gosling was attached to the right leg if female and to the left leg if male.

Other general observations of chronic mortality and possible causes, relationships with other waterfowl and feeding habits were made during the study period.

2. Results and General Conclusions.

The first group of 50 Canada geese arrived at Shiawassee Refuge on March 8, 1965. On March 9, 1965 the population of Canada geese increased to 175 birds. Six 1964 banded goslings were observed on the refuge on March 20, at which time the resident population appeared to number 300 birds. Separation in feeding and loafing from the remainder of the migrating flock, as in 1964, was the main factor of identification of residency.

The first observed nesting activity was in the first week of April. This activity was disrupted on April 11, when water flooded over dikes into Pools 1a and 1b causing considerable destruction to nesting islands and dikes. Many nesting pairs appeared to have set up nesting territory which had to be abandoned until about April 20 when the flood threat ended and water levels fell of to near normal.

A total of 28 nests were located during the surveys in comparison to 35 in 1964. Maps 1, 2, and 3 show the location of the nests. A total of 139 eggs were found with an average clutch size of 5.4. Artificial nesting islands again accounted for 22 or 78% of the nest sites while dikes provided 4 or 14% of the nesting sites with one muskrat house and one nesting tub providing the remaining two nesting sites. See photo 65-73. The nest sites indicated again the preference of a nesting Canada goose to be on an elevated position close to water with an unobstructed view of the surrounding area.

A variety of nesting cover was utilized including cattail (Typha spp.), smartweed (Polygonum spp.), reed canary grass (Phalaris spp.), and brome grass (Bromus spp.). There did not appear to be a specific preference for nest material but in all cases dead vegetation of dominant cover type provided nesting material.

Nest sites were more randomly located in Pool 1a and 1b than in 1964. Several factors may explain the increased dispersion of nesting sites. In the nesting season 1964, Pool 1b was densely covered with cattail stands in the east portion, thus the number of available artificial islands was limited. During the summer of 1964, Pool 1b was dewatered and cattail control and construction of islands was completed. This work opened new areas of potential nest sites for 1965. Higher water levels in Pool 1a over the past two years also helped to control cattail and also opened areas to nesting sites.

During the nesting survey, the relative degree of defense of nesting sites was observed and recorded. It appeared as incubation progressed, defense increased. Most active defenders of nests were located on dikes and usually consisted of the male defending an area around the nest while the female continued incubation.

The first successfully hatched brood was sighted on May 17, 1965. The re-survey of nests was conducted the first two weeks of June. The data collected showed a relatively high hatching success. Of the 139 eggs incubated, 115 or 82.7% hatched, 21 or 15.1% were either sterile or an advanced dead embryo occurred and 3 or 2.1% were destroyed. The cause of destruction of the three eggs was unknown. The above figures compared with 1964 data as follows: Of 188 eggs incubated, 150 or 79.8% hatched and 38 or 20.0% were either sterile or a death of an advanced embryo occurred.

Seventy goslings were trapped including 30 females and 40 males. A white base red strip vinyl plastic band was attached to the left leg of males and the right leg of females with a standard Fish and Wildlife Service band on the opposite leg. The goslings fed primarily in agricultural fields on Farm Units 121 and 122 separately from non-breeding segments of the resident population. In early stages of development of the goslings, young stems of barley and white bean plants provided the main portion of their diet.

There were no known losses due to disease during the year. Several Canada geese of the resident population were used to obtain blood samples in a study conducted by the Patuxent Wildlife Research Center. The study is being conducted to determine the presence of Plasmodium infection in the goose

flock at Seney National Wildlife Refuge and related flocks, namely Shiawassee. To date no results of the tests on the blood samples have been received.

Recovery information on 1964 banded goslings was received during the period. Two Canada geese bearing white and yellow plastic leg bands were seen on January 24, 1965 at the Union County State Refuge in southern Illinois. Nine Canada geese having same type of plastic leg bands were sighted at Crab Orchard National Wildlife Refuge, also in southern Illinois, approximately January 20, 1965. On December 22, 1964, an immature male Canada goose banded as a gosling here on June 11, 1964 was trapped at Crab Orchard National Wildlife Refuge. This bird weighed 9 lbs. 14 oz. and was significantly larger than an average immature male trapped at that station. One band return was received from a gosling banded June 11, 1964 and shot near Louisville, Kentucky in December of 1964.

Due to the late migration of the resident flock, usually around the last two weeks of December and the early arrival in March, the sightings in southern Illinois may indicate that our resident population is wintering in that area. Additional sightings in 1966 may bear this out.

B. Shiawassee Study Project No. 2.

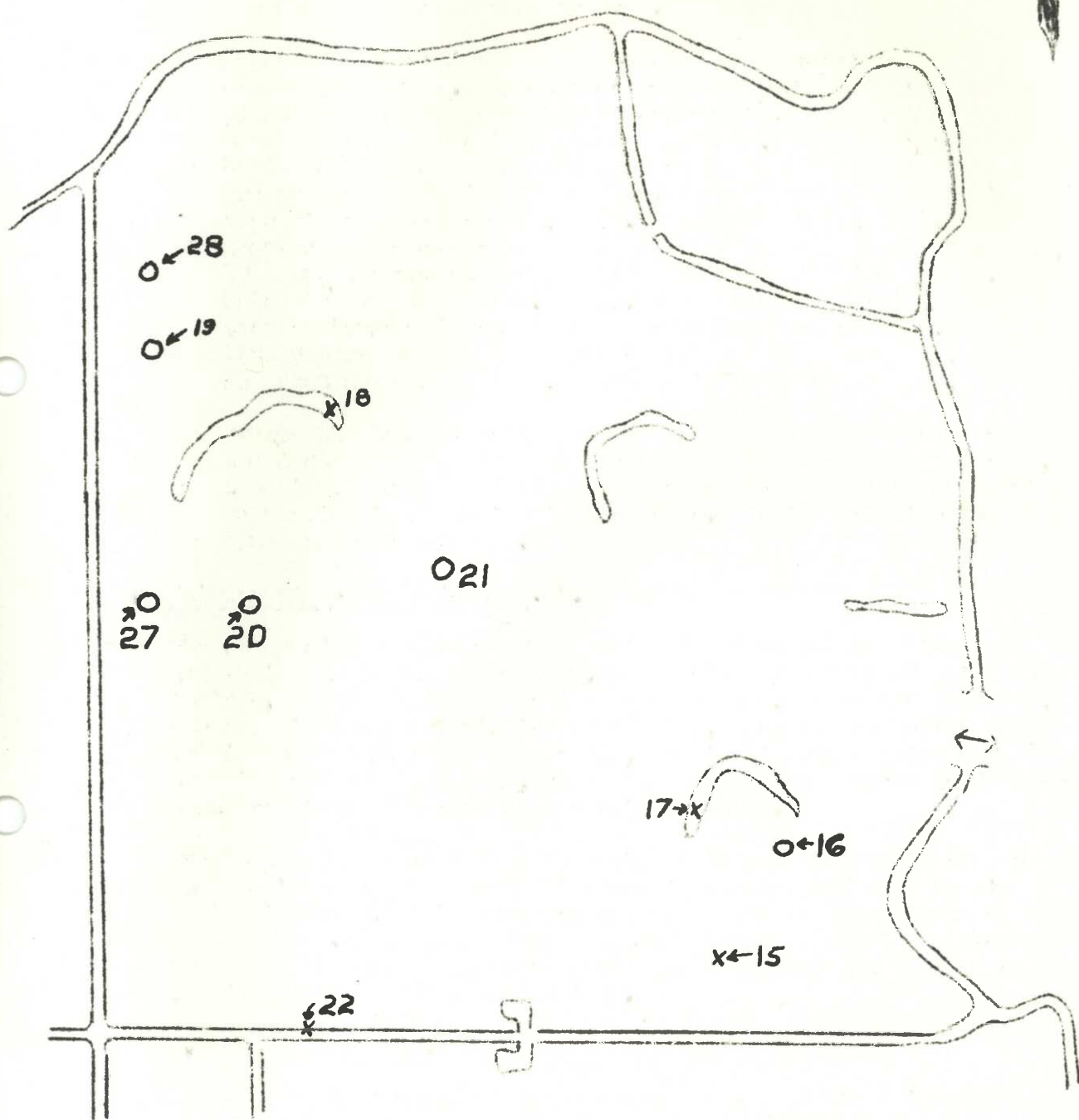
The study of the ecology of the Whistling Swan on the Shiawassee Refuge is now in its third year. The main objectives of this study include, determination of habitat preferences, migration patterns, morphological characteristics of species, sex, and age classes and origin and extent of all mortality, provide improved methods for trapping and marking swans, correlate current and future land management practices with annual population numbers.

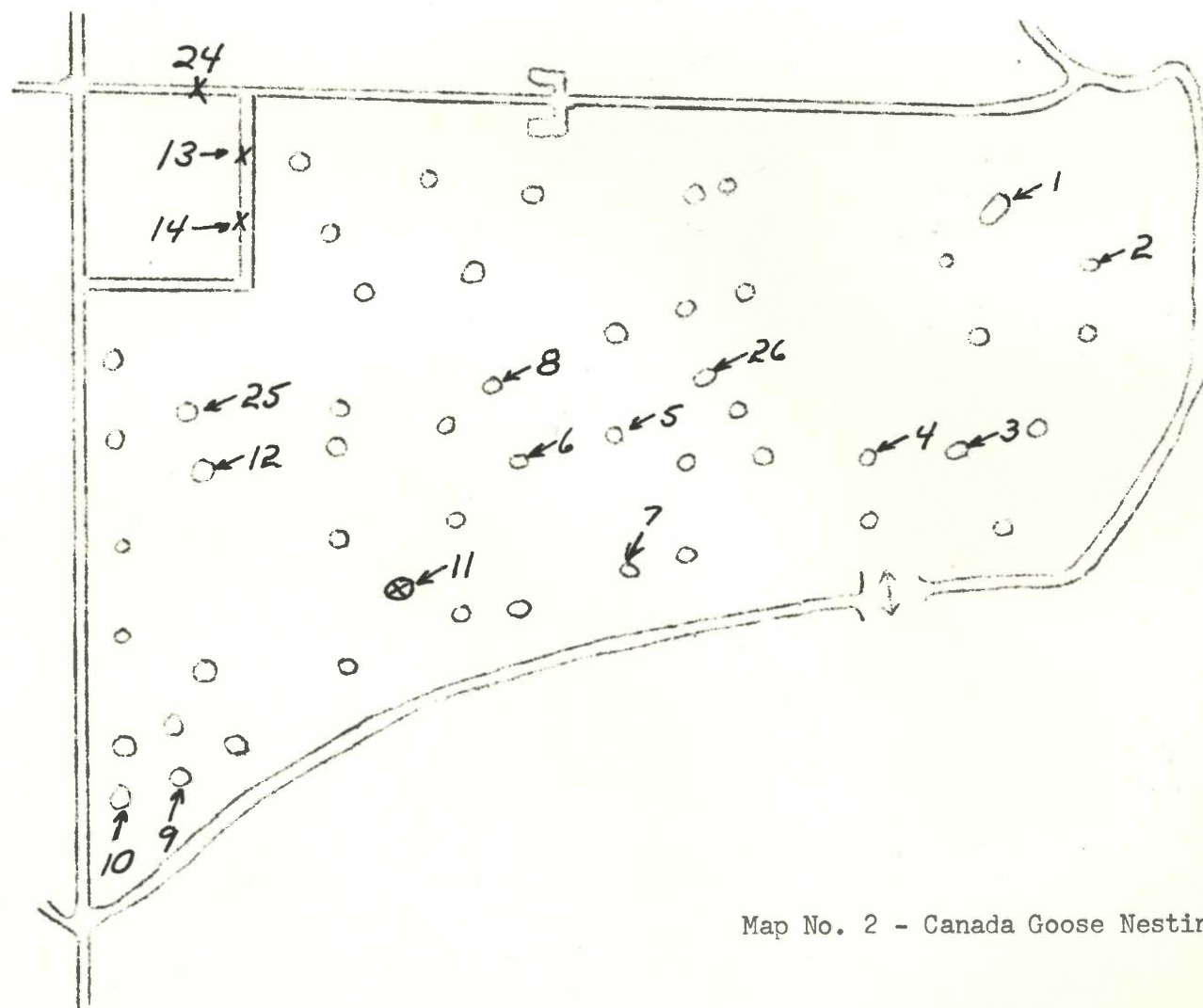
Due to the flood conditions in early April and Assistant Manager Anderson's absence while in Minneapolis at the Refuge Manager's Training Course, field work was not completed as extensively as had been planned. Thus, the data presented in the following paragraphs are only observational generalizations and should not be used as the basis for definite conclusions.

1. Population Data.

The first migrant Whistling swans (Olor columbianus) arrived on the refuge March 13, 1965. By March 17, 132 were present. The population reached a peak of 2,000 birds by April 20. Birds began leaving the refuge the week of April 25 and nearly all swans were gone by the 1st of May. Populations were low in comparison to the last 5 year average. Abnormally wet weather

Map No. 1 - Canada Goose Nesting - 1955

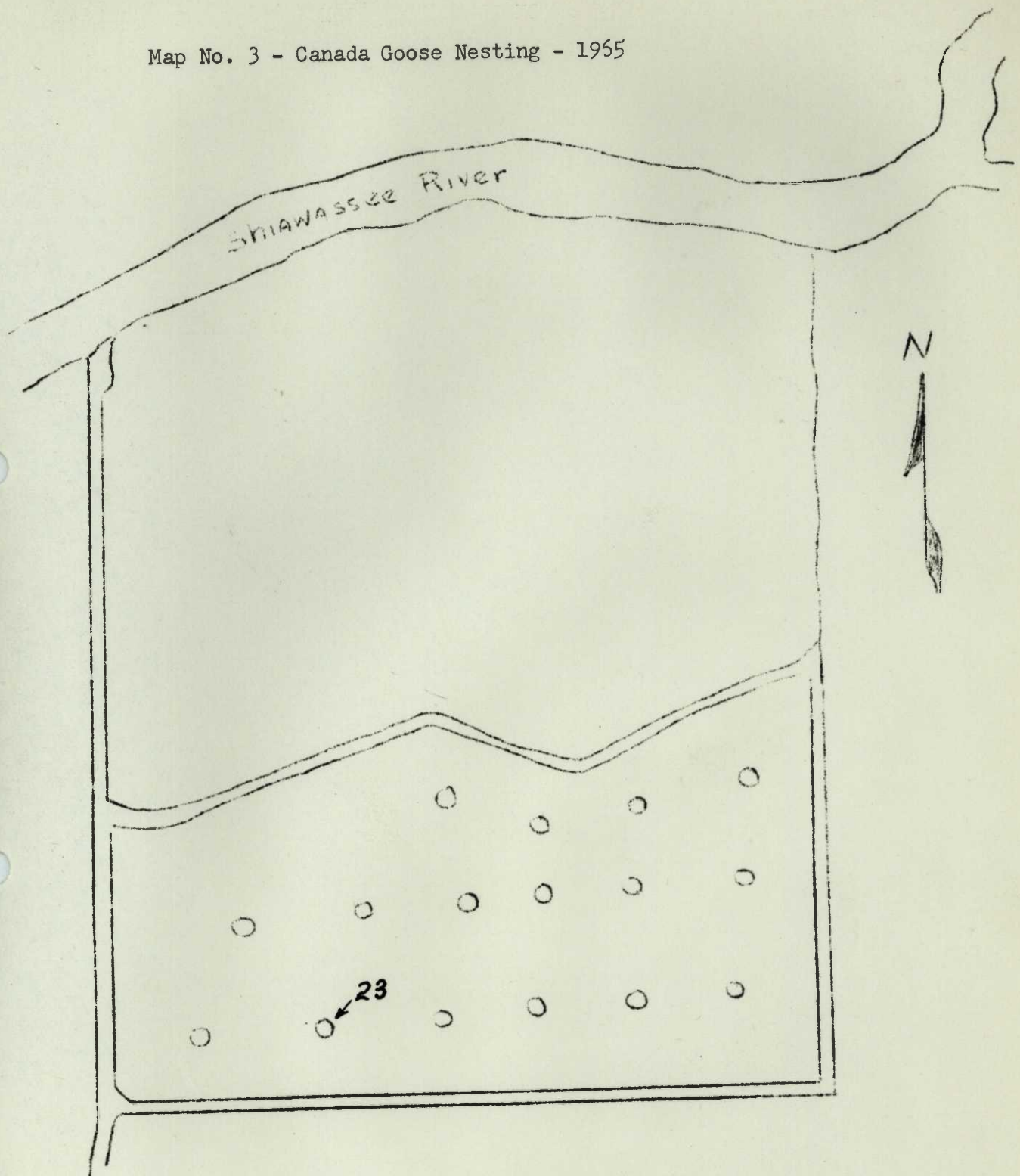




Map No. 2 - Canada Goose Nesting - 1955

⊗ - Artificial Nesting Tub

Map No. 3 - Canada Goose Nesting - 1965



Pool 2

and extensive flooded agricultural lands outside of the refuge tended to disperse the spring migration over a wide area. The 1965 annual mid-winter population survey in Michigan was conducted during the second week of January and recorded a total of 360 Whistling swans compared to 314 for 1964.

2. Determination of Movements.

An attempt was made to capture Whistling swans and complete marking procedures as was done in past years. Two cage type traps were constructed in flooded corn fields and baited. At the time when it appeared that the birds using the baited area might be captured, flood conditions prevailed and the rapid increase in flooded agricultural lands and associated dispersion prevented the capture of the birds.

One observational report of a previously banded bird was received. This Whistling swan was sighted on May 5, 1965 in a flock of 165, feeding on flooded grain stubble near Nipawin, Saskatchewan, Canada.

3. Behavior.

Definite patterns of feeding were established upon the first arrival of Whistling swans. The first arrivals fed primarily in a flooded sugar beet residue field on private land bordering the refuge and loafed in open water areas of the Shiawassee River. As the migration population increased and additional water areas became available, the swans moved to flooded corn stubble with periods of loafing in open water areas of Pools 1a and 1b. Corn provided the major portion of their diet with ryegrass and winter wheat continued over a large area until departure. With the increased flooded croplands, there did not appear to be interspecific or intraspecific competition with other waterfowl for available food supply.

4. Additional Information.

Disease. Three Whistling swans were found dead during the spring migration. Cause of death appeared to have been lead poisoning ingested on wintering grounds in the southeastern United States.

One adult female Whistling swan with a fractured wing tip was picked up by refuge personnel in April near Saginaw Bay and released on the refuge. It remained in Pool 1b and Farm Unit 121 and at the end of the period, it had not migrated.

Shiawassee National Wildlife Refuge

Dewline Banding Program - 1965

Banding operations began June 21 and terminated October 18, 1965. The 1965 quota was again 2,000 mallards, 500 of each age and sex.

Trapping was conducted in Pools 1a and 1b and drainage ditches in Farm Units 121a, 121b and 122. Traps used included floating cage traps, drive traps, Colorado type cage trap and cannon net trap. Traps were baited with barley-corn mixture. Efforts were hampered by small numbers of ducks prior to opening of waterfowl season, and excessive available food grown on refuge farm units. Because of the late season buildup of peak numbers of mallards, a post season banding quota could possibly be reached.

Table No. 1

	<u>Adults</u>		<u>Immatures</u>		<u>Locals</u>		<u>Total</u>
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	
Mallard	183	272	130	236	28	27	876
Black Duck	37	20	14	24	-	-	95
Pintail	1	6	1	-	-	-	8
Wood Duck	66	23	54	50	-	-	193
Blue-winged Teal	5	16	16	13	-	-	50
Green-winged Teal	-	1	-	-	-	-	1
American Widgeon	1	-	1	-	-	-	2
Sub Total	293	338	216	323	28	27	1225
Canada Goose	25	25	34	28	40	30	182
Whistling Swan	-	1	-	-	-	-	1
Grand Total	318	364	250	351	68	57	1408

Other Species Banded

<u>Species</u>	<u>Numbers</u>
American Coot	1

C. Marsh Transect Survey.

Nine line intercepts transects established in 1964 according to the line intercept method proposed by Dr. W. Green in "Suggested Procedure For Sampling Vegetation" were used by Wildlife Aid Wint. The new transect surveys were completed the first week of August. All nine permanent stakes marking the beginning of each transect were in excellent condition after one year.

Although one year's data is inconclusive it is believed that this systematic procedure will provide accurate results upon which to base future water management plans to produce desirable marsh and aquatic vegetation. The data were recorded and summarized by Wildlife Aid Wint and are in the refuge files.

VI. PUBLIC RELATIONS

A. Recreational Uses.

Visitor use during the early portion of the year was below that of 1964 due to extreme weather conditions and flooding. Receding flood waters and drier weather in late April allow increased visits to view the last portion of the spring migration. Visits by driving into the refuge via public roads was high throughout the year and provided excellent opportunities to view wildlife with a minimum of disturbance. Only 13 one day permits were issued for viewing wildlife in the closed area until the beginning of the hunting season.

Carp fishermen, anglers, and archers, were present in below average numbers during the spring months due to flood conditions. The hiking trail, "Shiawassee Trail", located in the bottomland hardwood area on the east side of the refuge and maintained by a local Boy Scout troop, received good use during late summer and early fall months.

B. Refuge Visitors.

Official visitors are listed as follows:

<u>Date</u>	<u>Name</u>	<u>Affiliation</u>	<u>Purpose</u>
Jan. 5	Marvin Cooley	M.C.D., Lansing	Waterfowl census
19	Ed Larie	FWS, Realty, Mpls. Minn.	Acquisition
28	Marvin Johnson	M.C.D., St. Charles	Property screening
Feb. 9	George Orlich	FWS, Seney Refuge	Equipment transfer
9	Junior Losey	FWS, Seney Refuge	Equipment transfer
18	John Hakala	FWS, Seney Refuge	Student interviews
18	Gerald Falls	GSA, Detroit, Mich.	Excess property
18	Olson Radsick	FWS, Ottawa Refuge	Seed transfer
25	Forrest Carpenter	FWS, Refuges, Mpls. Minn.	Master Plan and
25	Frank R. Martin	FWS, Refuges, Mpls. Minn.	Coop. Agreement
25	C. A. Hughlett	FWS, Refuges, Mpls. Minn.	" "

<u>Date</u>	<u>Name</u>	<u>Affiliation</u>	<u>Purpose</u>
Mar. 2	R. Boehringer	U. S. Probation Officer	Refuge violations
2	Wm. G. McClure	USGMA, Lansing, Michigan	Enforcement
8	E. Ebbeson	FWS, Engineering, Mpls.	Surveys
26	Gerald Falls	GSA, Detroit, Michigan	Excess property
27	Richard Fraser	Lansing State Journal	News article
31	Ben Wallace	SCS, Saginaw, Mich.	Farm planning
Apr. 7	H. B. Crandell	FWS, Washington	Master planning
7	C. A. Hughlett	FWS, Refuges, Mpls. Minn.	Master planning
7	Marvin Cooley	M. C. D., Lansing, Mich.	Waterfowl census
13	Dale Pasco	SCS, Saginaw, Mich.	Soil surveys
13	Prof. Cowan & Class	U of M, Ann Arbor, Mich.	Visit
16	Dale Pasco	SCS, Saginaw, Mich.	Soil surveys
May 13	John W. Ellis	FWS, Agassiz Refuge	Visit
25	L. C. Lindvall	USGMA, Manistique, Mich.	Visit
28	Mr. & Mrs. Gottschalk	Director, FWS, Washington	Visit
28	Mr. & Mrs. Gillett	FWS, Refuges, Washington	Visit
June 1	Donald Hankla	FWS, Refuges, Atlanta, Ga.	Visit
19	Earl Cunningham	FWS, Ottawa Job Corps	Visit
July 9	Gilbert Herman	Patuxant W. R. Center, FWS	Research study
9	Carleton Herman	Patuxent W. R. Center, FWS	Research study
12	Frank R. Chilsn	U. S. Coast Guard Aux.	Safety meeting
26	A. L. Bergsma	Grand Rapids Rubber Co.	Plastic leg bands
26	U. W. Kaestra	Grand Rapids Rubber Co.	Plastic leg bands
30	Robert Ankney	M. C. D., Michigan	Corn transfer
Aug. 19	Martin Pollock	M. C. D., Mason, Mich.	Corn transfer
24	Mr. & Mrs. Orlich	FWS, Seney Refuge	Visit
24	Ed Collins	FWS, Necedah Refuge	Visit
30	Dr. Miles Pirnie	M. S. U., Lansing, Mich.	Waterfowl photos
Sept. 3	Delbert H. Bridge	FWS, Ottawa Job Corps	Equipment trans.
3	Ernest L. Rauber	FWS, Ottawa Job Corps	Equipment trans.
3	Joe Kotak	FWS, Ottawa Job Corps	Equipment trans.
29	George Hunt	U of M, Ann Arbor, Mich.	Proposed study
29	David Weaver	U of M, Ann Arbor, Mich.	Proposed study
Oct. 12	Ed Bosak	USGMA, Columbus, Ohio	Enforcement
13	Frank R. Martin	FWS, Refuges, Mpls. Minn.	Inspection
29	W. McNeel & Class	Central Mich. University	MEA Cons. Tour
Dec. 6	Donald Hankla	FWS, Refuges, Atlanta, Ga.	Visit
6	William E. Green	FWS, Winona, Minnesota	Visit
6	Harvey K. Nelson	FWS, Northern Prairie W.R.C.	Visit
6	Herbert H. Dill	FWS, Refuges, Mpls. Minn.	Visit
6	Frank McGilvrey	Patuxent W. R. Center, FWS	Visit
15	Ken Austin	Consumers Power Company	Electric billing
15	George Orlich	FWS, Seney Refuge	Equipment trans.

Frequent refuge visitors during the year included farming cooperators, U. S. Game Management Agent Meyerding, Bay City, Michigan Conservation Department Conservation Officer John Harris, Saginaw, and Soil Conservation Service personnel, Saginaw.

C. Refuge Participation.

1. Refuge Tours.

- March 27 - Photographer and party from Lansing State Journal. (Frye)
- April 3 - Michigan Audubon Clubs. (Frye)
- 13 - University of Michigan Wildlife Life Histories Class. (Frye)
- 24 - Lansing High School Biology Class and Lansing Walkers Club. (Frye)
- May 7 - Chesaning High School Biology Class. (Anderson)
- 10 - Boy Scout Officials. (Frye)
- 11 - Hemlock High School Biology Class. (Frye and Anderson)
- 12 - Cub Scout Pack. (Poma)
- 13 - Mahar School. (Anderson and Frye)
- 21 - Bridgeport Elementary School. (Frye, Poma, and Robinson)
- 28 - Director Gottschalk and Chief, Refuge Division Gillett. (Frye and Anderson)
- June 1 - Cub Scouts, Stone Elementary School. (Poma)
- 25 - United Church Vacation Bible School. (Anderson and Frye)
- September 29 - George S. Hunt and David Weaver, University of Michigan. (Anderson and Frye)
- 29 - Cub Scouts. (Frye)
- October 13 - Saginaw County Cooperative Extension Service Women's Club. (Anderson and Poma)
- 13 - U. S. Attorney Henry A. Pominville, Bay City. (Anderson and Frye)
- 19 - Chippewa School 7th Grade. (Frye, Anderson, Poma, and Robinson)

- October 24 - Lansing Audubon Club. (Anderson)
- 25 - Bridgeport School 6th grade class. (Frye)
- 28 - Brownie Troop, Weiss School. (Anderson and Poma)
- 28 - Girl Scout Troop 69. (Anderson and Poma)
- 29 - Michigan Education Association. (Anderson and Poma)
- November 2 - Hemlock High School Biology Class. (Frye and Anderson)
- 3 - Griggs School, Munger, 3rd & 4th grades. (Anderson and Frye)
- 4 - Weiss School, Saginaw, 4th grades. (Frye and Anderson)
- 7 - Junior Girl Scouts. (Poma)
- 12 - Mills Central School, Midland, 5th & 6th grades. (Robinson and Poma)

2. Meetings.

- February 4-6 - Frye and Anderson attended Goose Management in Michigan meeting held at the Kellogg Bird Sanctuary, Hickory Corners, Michigan.
- 24-26 - Frye and Anderson with Regional Supervisor Carpenter and Assistant Regional Supervisor Martin met in St. Charles, Michigan with officials of Michigan Conservation Department concerning revision of Shiawassee Flats Wildlife Management Area Cooperative Agreement.
- March 12 - Frye and Anderson attended meeting of local landowners to discuss proposed diversion of Eastwood Drain.
- 18 - Frye and Anderson conducted meeting for all refuge farming cooperators.
- April 6 - Frye conducted meeting for all refuge cooperators.
- June 2 - Frye attended Governor's Conference on Recreation in Lansing, Michigan.

- June 29 - Frye attended Water Advisory Committee meeting in Saginaw.
- Sept. 8-10 - Frye, Anderson and Robinson attended meeting of Project Leaders in Michigan at Seney Refuge.

Monthly meetings of the Saginaw County Agricultural Council were attended by Frye and Anderson. Frye acted as Secretary-Treasurer at the meetings in 1965 and was elected Vice President in 1966. Refuge personnel were in attendance at several meetings of the Saginaw Field and Stream Club during the year.

3. Slide Talks.

- February 15 - University of Michigan Wildlife Management Seminar. (Frye and Hakala)
- 16 - Michigan State University Fisheries and Wildlife Club. (Frye and Hakala)
- April 20 - McBrite School. (Frye)
- May 17 - Boy Scout Troop, Country Side Presbyterian Church. (Anderson)
- 26 - Banner School 7th Grade. (Frye)
- September 30 - Christ Lutheran Church, Birch Run. (Robinson)
- October 13 - Saginaw County Cooperative Extension Service Woman's Club. (Anderson)
- October 14 - Lansing Audubon Club. (Frye)
- November 9 - Michigan State University Wildlife Management Class. (Frye)
- 10 - St. Joseph's Catholic School PTA meeting. (Anderson)

4. Student Interviews.

Refuge Managers Frye (Shiawassee) and Hakala (Seney) conducted student interviews for summer Wildlife Aid positions and permanent positions with the Bureau at University of Michigan on February 16 and at Michigan State University on February 17.

5. Other.

Frye served as Assistant District Commissioner for the local Boy Scouts of America district. He was also invited to join the Spaulding Township Volunteer Fire Department and has served with the organization since May.

D. Hunting.

Hunting was prohibited on the refuge in 1965 except from November 20 to December 5 when the taking of White-tailed deer under current Federal and State regulations was permitted on a portion of the refuge. The open area consisted of approximately 3,300 acres on the eastern half of the refuge made up of bottomland hardwoods interspersed with agricultural lands (see map 4). An estimated 2,612 man-days of deer hunting produced a legal kill of about 125 animals including 25 does. The open area of the refuge represented a portion of an antlerless deer permit area designated by the Michigan Conservation Department. A total of 600 permits were issued in the total area. Only a small portion of the permit holders hunted on refuge lands. This permit system did not have an observable adverse effect upon the population but it tended to reduce the illegal doe kill which usually resulted in wasted deer.

The hunting season on Canada geese was closed for the second consecutive year in a 66,000 acre area encircling both the refuge and the Shiawassee River State Game Area. This closure was again an attempt to reduce hunting pressure on the resident flock and also increase Canada goose populations during the fall migration. As noted in Section II A, Canada goose populations increased substantially during this period. Closure of the same area is also set for 1966.

Waterfowl hunting pressure, other than for geese, was heavy during the first portion of the season on the Shiawassee River State Game Area and tapered off to very light pressure and success at closing. Estimated numbers of waterfowl killed is unavailable at the present time, but appeared to be below 1964.

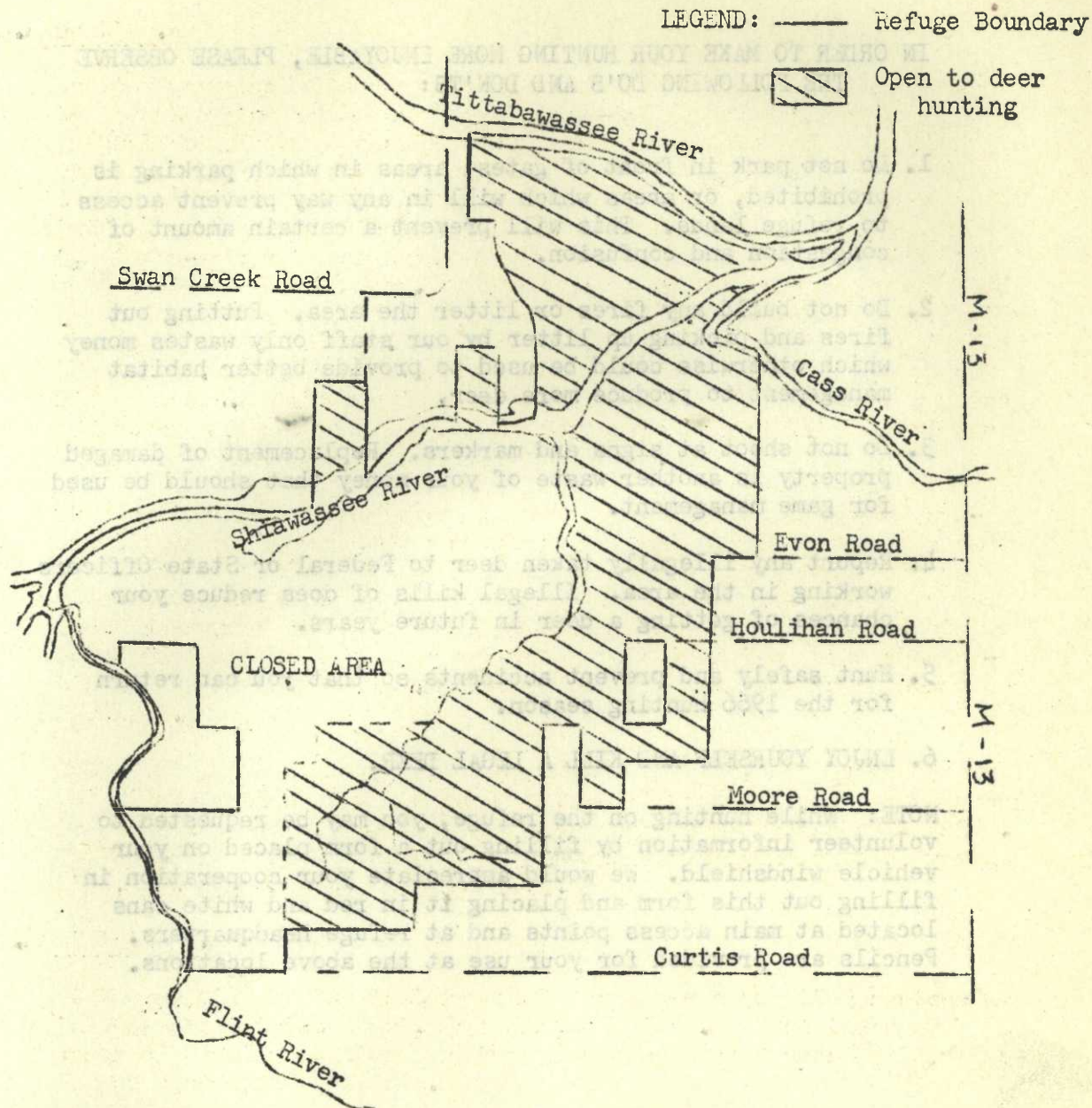
E. Violations.

At the writing of the last report 18 cases were awaiting sentencing in Federal District Court, Bay City, Michigan. These included 11 cases of hunting on closed refuge lands and seven cases of trespassing on closed refuge lands.

The following list of violations includes the above 18 cases and violations on refuge lands occurring in 1965.

<u>Violation</u>	<u>Date of Violation</u>	<u>Court Action</u>
Trespassing on N.W.R.	10/5/64	\$50 1 year probation
Trespassing on N.W.R.	10/5/64	\$50 1 year probation
Trespassing on N.W.R.	10/5/64	\$50 1 year probation
Hunting on N.W.R.	10/8/64	\$50 1 year probation
Hunting on N.W.R.	10/8/64	\$50 1 year probation

SHIAWASSEE NATIONAL WILDLIFE REFUGE



SPECIAL REGULATIONS

Public hunting for deer, in accordance with State Deer Hunting Regulations, authorized only on areas designated as open hunting areas by signs from 6:00 AM to 7:00 PM daily from November 20 through December 5, 1965.

Hunting permitted with shotguns only. Use of .22 cal. rifles prohibited.

All hunters must exhibit their hunting license, deer tag, game, and vehicle contents to Federal and State Officers upon request.

IN ORDER TO MAKE YOUR HUNTING MORE ENJOYABLE, PLEASE OBSERVE
THE FOLLOWING DO'S AND DON'TS:

1. Do not park in front of gates, areas in which parking is prohibited, or areas which will in any way prevent access to refuge lands. This will prevent a certain amount of congestion and confusion.
2. Do not build any fires or litter the area. Putting out fires and picking up litter by our staff only wastes money which otherwise could be used to provide better habitat management to produce more deer.
3. Do not shoot at signs and markers. Replacement of damaged property is another waste of your money that should be used for game management.
4. Report any illegally taken deer to Federal or State Officers working in the area. Illegal kills of does reduce your chances of getting a deer in future years.
5. Hunt safely and prevent accidents so that you can return for the 1966 hunting season.
6. ENJOY YOURSELF AND KILL A LEGAL DEER.

NOTE: While hunting on the refuge, you may be requested to volunteer information by filling out a form placed on your vehicle windshield. We would appreciate your cooperation in filling out this form and placing it in red and white cans located at main access points and at refuge headquarters. Pencils are provided for your use at the above locations.

<u>Violation</u>	<u>Date of Violation</u>	<u>Court Action</u>
Hunting on N.W.R.	10/10/64	\$50 -
Trespassing on N.W.R.	10/14/64	\$50 1 year probation
Hunting on N.W.R.	10/22/64	\$50 1 year probation
Hunting on N.W.R.	10/22/64	\$50 2 years probation
Hunting on N.W.R.	10/22/64	\$50 1 year probation
Hunting on N.W.R.	10/22/64	\$50 1 year probation
Trespassing on N.W.R.	11/19/64	\$50 -
Trespassing on N.W.R.	11/15/64	\$50 1 year probation
Trespassing on N.W.R.	11/15/64	\$50 1 year probation
Hunting on N.W.R.	11/23/64	\$50 6 months probation
Hunting on N.W.R.	11/8/64	\$50 1 year probation
Hunting on N.W.R.	11/8/64	\$50 1 year probation
Hunting on N.W.R.	11/18/64	\$50 6 months probation
Trespassing on N.W.R.	1/7/65	\$50 1 year probation
Trespassing on N.W.R. and destruction of Government property (shooting refuge sign)	1/7/65	\$100 2 years probation
Possession of illegal firearm on N.W.R.	8/19/65	\$90 Seizure of firearm (State Court)
Hunting on N.W.R.	10/11/65	Pending

Several rubbish dumping violations occurred on refuge lands during the year (see photo 65-121). Envelopes, papers, etc. sometimes provide enough information to allow us to contact the party concerning the violation and ask their cooperation in removing the trash. This action provided good cooperation in reducing this occurrence.

Shooting of refuge boundary signs on the north side of the refuge which receives a minimum amount of patrol increased sharply during the year. Increased patrol work in future years will be required in this area. Again in this period, excellent cooperation with the Michigan State Conservation Officers in the area and the Michigan State Police was received in all phases of law enforcement work.

F. Safety.

The station safety committee; Anderson, Poma and Mayle, set up safety meeting schedules and regular monthly safety meetings were held throughout the year as listed below:

- January 6 - Review of past safety meeting procedures and schedules for 1965, conducted by Anderson.
- February 1 - Safety in handling both dead and live animals and use of pesticides, conducted by Anderson.
- March 2 - Film "Be Current Wise" and safety in working with electricity, conducted by Mayle.

- April 2 - Film "First Things First" showing first aid procedures following various types of accidents, conducted by Poma.
- May 4 - Pesticides in the home and on the job, conducted by Robinson.
- June 7 - Driving safety conducted by Michigan State Police trooper Bayn, arranged by Shelley.
- July 12 - Boating safety, conducted by Mr. Frank Chilson, member of the Coast Guard Auxillary, arranged by Wint.
- August 2 - Driving safety films "To See Ourselves" and "Look Who's Driving", conducted by Anderson.
- September 7 - Proper use and maintenance of hand and power tools, conducted by Mayle.
- October 4 - Fire prevention with film "Grass and Brush Fire Fighting", conducted by Poma.
- November 3 - Driving safety, conducted by Robinson.
- December 6 - Driving safety, conducted by Shelley.

On the job safety discussions were held periodically throughout the year. No lost time accidents occurred. A near mishap occurred when Operator General fell from ladder while attempting to clean out hornets nest. The station safety record now stands at 4,490 days without a lost time accident.

VII. OTHER ITEMS

A. Trips.

- January 14 - Frye to Ann Arbor, Michigan and Lansing, Michigan to make arrangements for student interviews.
- February 16 to March 5 - Snider to Ashville, North Carolina to attend the Job Corps training course.
- February 22-27 - Robinson and Mayle to Crab Orchard Refuge to attend Law Enforcement Workshop.
- March 28 to May 3 - Anderson to Arden Hills, Minnesota to attend Basic Refuge Managers Training Course.
- June 1 - Frye to Wyandotte with refuge survey team to inspect Wyandotte Refuge.

- June 4 - Frye to Owasso, Detroit, and Alma to deliver copies of "Waterfowl Tomorrow" to designated colleges.
- June 16 - Frye with Regional Recreation Specialist Trecker met with officials of City of Wyandotte concerning use of Wyandotte Refuge.
- June 24 - Anderson to Grand Rapids, Michigan to contact the Rubber Products Company concerning fabrication of plastic neck bands.
- July 15 - Frye to Ionia to make arrangements for use of exhibits at Free Fair.
- July 21 - Frye to Seney Refuge to pick up exhibit for display at Ionia Free Fair.
- August 5 - Anderson and Frye to Ionia to set up display at Ionia Free Fair.
- August 16 - Anderson and Wint to Ionia to pick up display and ship to Northern Prairie Wildlife Research Center.
- Sept. 15-19 - Frye and Anderson to Lake St. Clair to post closed areas and enforce regulations of early teal season.
- October 5 - Frye and Anderson to Wyandotte, Michigan to set out buoys for Wyandotte Refuge.
- Oct. 27-30 - Poma to Minneapolis R.O. to attend Law Enforcement Workshop.
- November 4 - Frye and Anderson to Ann Arbor, Michigan to deliver Master Plans to School of Natural Resources and discuss study proposal.
- November 22 - Frye and Anderson to Wyandotte and Lake St. Clair to pick up buoys.
- December 6 - Frye to Lansing to attend opening session of 27th Annual Midwest Fish and Wildlife Conference.

During the year several trips were made to Detroit Tank Plant, Selfridge Air Force Base and Wurtsmith Air Force Base to screen and/or pick up excess property items. In addition, a trip was made to Kalamazoo, Michigan to pick up lowbed trailer.

B. Miscellaneous.

A conservation project, filling goose nesting tubs with nesting materials, was completed on February 20 under supervision of Managers Frye and Anderson, by local Boy Scout Troop 42.

C. Personnel Changes.

Amos Snider, Maintenceman, transferred March 22 to Job Corps Conservation Center, Carterville, Illinois as work leader GS-7. The maintenanceman position has remained vacant since that time.

S. Sam Poma, Refuge Clerk, received a promotion from GS-5 to GS-6 effective January 3, 1965.

D. Land Acquisition.

Two tracts were acquired through negotiations during the year. On November 9, a declaration of taking on the remaining 2,000 acres of land within the approved final boundary was filed in Federal District Court, Bay City, Michigan, bringing it under immediate federal possession.

E. Photographs.

The photographs appended to this report were taken with refuge equipment and processed in the refuge darkroom.

F. Credits.

Frye: Sections I, II A, III A.

Anderson: Sections II B, C, D, E, F, G, H, I, J, III B, C, D, E, F, IV, V, VI, VII.

Poma: Section VI A, typing and assembling.

Acknowledgement is made of excellent cooperation and enthusiasm of all station personnel which made accomplishments of the refuge possible during the year.

SIGNATURE PAGE

Submitted by:

John R. Frye
(Signature)
John R. Frye

Date: January 7, 1966

Refuge Manager
Title

Approved, Regional Office:

Date: March 11, 1966

Frank R. Martin
(Signature)

Asst.
Regional Refuge Supervisor



John R. Frye
Refuge Manager



Edward W. Anderson
Asst. Refuge Manager



S. Sam Poma
Refuge Clerk



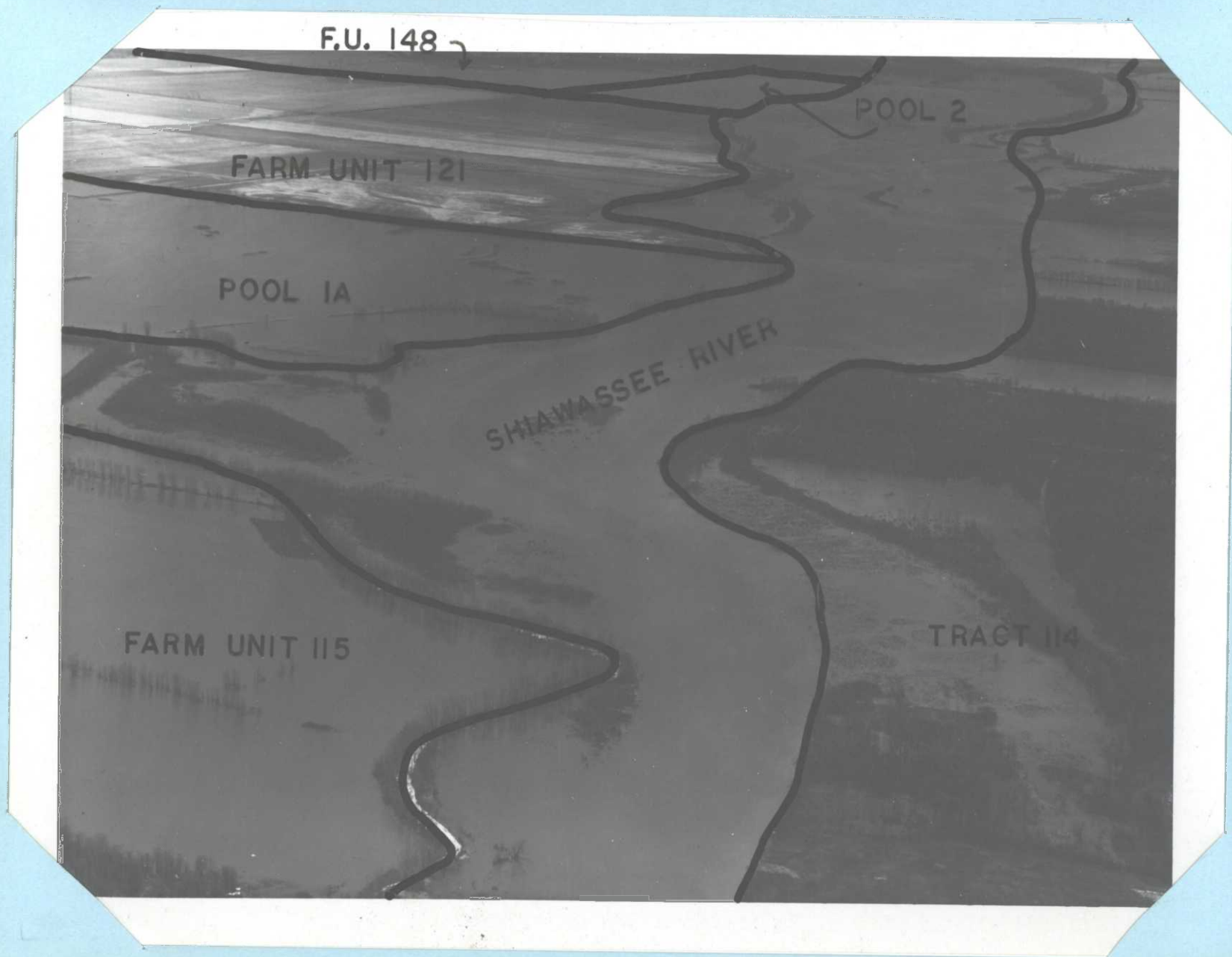
Louis D. Robinson
Heavy Duty Mechanic



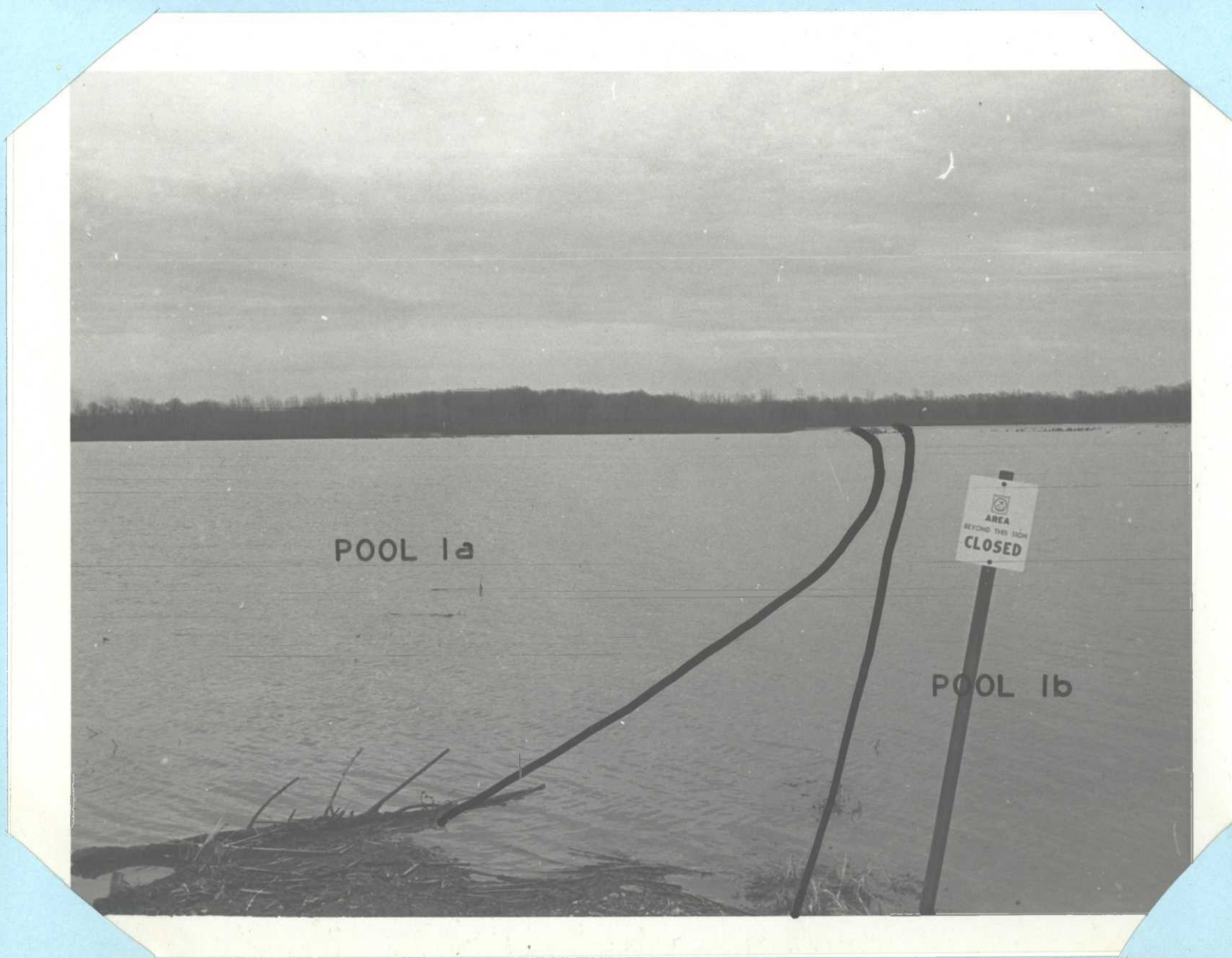
James R. Mayle
Operator General



Kenneth Shelley
Operator General



Shiawassee River and main refuge area during spring flood. Saginaw News Photo. 4/18/55



Low level dike during high water conditions. Pool 1a on left and 1b on right.
Photo 65-42, 4/18/65, J. R. F.



Depth of flood water over Pool 1 low level dike. Photo 65-65, 4/18/65, DEH.



Worst washout in Pool 1 low level dike and other dike damage following spring flood. Photo 55-79, 5/5/55, JRF.



Repaired areas of Pool 1 dike, after spring flood, were seeded and mulched to re-establish grass cover. Photo 55-115, 7/10/55, JRF.



One of many refuge tours for school groups during the year. 180 4th grade students from Bridgeport, Michigan. Photo 55-86, 5/21/65, JRF.



Smaller tour group, a vacation Bible school, hearing about refuge operations from Manager Frye.
Photo 55-132, 5/25/55, EWA.



School group listening to Manager Anderson expound on operation of the "Colorado" duck trap.
Photo 55-101, 5/25/55, JRF.



Michigan Audubon Clubs held their spring bird walk on Shiawassee Refuge. Photo 55-32, 4/3/55, JRF.



The 8-wheel drive amphibious vehicle acquired through surplus channels was quite handy for hauling materials into flooded fields for construction of a swan trap. Photo 55-35, 4/8/55, JRF.



Boy scouts from Troop 42 placed nesting materials and gravel in goose nesting tubs as a conservation project. Photo 65-8, 2/20/65, JRF.



A goose nested in one of the tubs constructed from the end of a jet engine container, and successfully hatched a brood. Photo 65-73, 4/27/65. JRF.



Cannon net trapping site in Pool 1b after grading and shaping for use with new cannons and fringed net. Photo 65-136, 8/22/65, JRF.



A refuge beautification week project was clean-up of boneyard and clearing a new equipment storage yard east of secondary headquarters. Area was levelled and seeded to grass. Photo 55-112, 7/10/55, JRF.



Secondary headquarters equipment building before replacement of overhead doors.
Photo 65-104, 6/26/65, JRF.



Secondary headquarters equipment building after installation of new fiberglass panel overhead doors. Building was later painted white with red roof. Photo 55-121, 7/19/55, JRF.



Refuge boundary line was cleared and fenced along west side of Johnson Tract No. 114.
Photo 65-175, 12/5/65, JRF.



Observation tower at east end of Pool 1 was blown down by high winds on November 19, 1965.
Photo 65-171, 11/26/65, JRF.



Dumping of trash and garbage on refuge lands is an ever increasing problem. Assistant Manager Anderson inspects one load for clues to identification of responsible party. Photo 65-161, 11/2/65, JRF.



Often it becomes necessary to dig a little deeper for clues. Photo 65-187, 11/2/65, JRF.



Old buildings acquired on Tracts No. 161 and 174 were destroyed by burning, as a training exercise by Spaulding Township Volunteer Fire Department. Photo 65-81, 5/20/65, JRF.